1. An isolated and purified n~~N~~ucleic acid or fragment thereof that~~which~~ codes for a plant or animal nuclear base transporter comprising~~,~~ ~~selected from~~:

a) a n~~N~~ucleic acid that~~which~~ is obtainable through complementation of nuclear base transporter-deficient host cells with a plant or animal gene bank and selection of nuclear base transporter-positive host cells;

b) a n~~N~~ucleic acid with a sequence that~~which~~ codes for a protein having~~with~~ a sequence according to SEQ ID NO:~~—~~8 or SEQ ID NO:~~—~~9;

c) a n~~N~~ucleic acid that~~which~~ hyridizes with a nucleic acid according to b);

d) a n~~N~~ucleic acid that~~which~~, in consideration of degeneration of the genetic code, would hybridize with a nucleic acid according to b) or with the sequence complementary to b);

e) a d~~D~~erivatives~~—~~ of a nucleic acid according to a) to d) obtained through substitution, addition, inversion and/or deletion of one or more bases; or

f) a n~~N~~ucleic acid complementary to a nucleic acid according to one of the groups a) to e);

with the proviso that nucleic acids with a sequence according to one of the SEQ ID NO 3 to 5 are excluded.

2. The n~~N~~ucleic acid according to Claim 1~~,~~ ~~characterized in~~ that ~~it~~ includes a ~~the~~ coding sequence ~~of one of the sequences~~ according to ~~the~~ SEQ

ID NO:~~-~~1, 2, 6, 7, or 10, or a derivative of a coding sequence according to SEQ ID NO:1, 2, 6, 7, or 10 derived ~~from these~~ through substitution, addition, inversion and/or deletion of one or more bases.

3. The n~~N~~ucleic acid according to one of the Claim~~s~~ 1 ~~or 2~~, wherein said nucleic acid~~characterized in that it~~ is a DNA.

4. A f~~F~~ragment of a nucleic acid ~~according to one of the claims 1 to 3,~~ that codes for a plant or animal nuclear base transporter comprising:

a) a nucleic acid that is obtainable through complementation of nuclear base transporter-deficient host cells with a plant or animal gene bank and selection of nuclear base transporter-positive host cells;

b) a nucleic acid with a sequence that codes for a protein having a sequence according to SEQ ID NO:8 or SEQ ID NO:9;

c) a nucleic acid that hyridizes with a nucleic acid according to b);

d) a nucleic acid that, in consideration of degeneration of the genetic code, would hybridize with a nucleic acid according to b) or with the sequence complementary to b);

e) a derivative of a nucleic acid according to a) to d) obtained through substitution, addition, inversion and/or deletion of one or more bases; or

f) a nucleic acid complementary to a nucleic acid according to one of the groups a) to e);

with the proviso that nucleic acids with a sequence according to one of the SEQ ID NO 3 to 5 are excluded,

wherein said fragment is characterized in that in anti-sense orientation to a promoter it can inhibit the expression of a nuclear base transporter in a host cell.

5. The nucleic acid f~~F~~ragment according to Claim 4, ~~characterized in~~ that ~~it~~ includes at least 10 nucleotides~~., preferably at least 50 nucleotides, especially preferably at least 200 nucleotides.~~

6. A c~~C~~onstruct co~~mprising~~~~ntaining~~ the sequence of at least a portion of an isolated and purified nucleic acid that codes for a plant or animal nuclear base transporter that itself comprises:

a) a nucleic acid that is obtainable through complementation of nuclear base transporter-deficient host cells with a plant or animal gene bank and selection of nuclear base transporter-positive host cells;

b) a nucleic acid with a sequence that codes for a protein having a sequence according to SEQ ID NO:8 or SEQ ID NO:9;

c) a nucleic acid that hyridizes with a nucleic acid according to b);

d) a nucleic acid that, in consideration of degeneration of the genetic code, would hybridize

with a nucleic acid according to b) or with the sequence complementary to b);

e) a derivative of a nucleic acid according to a) to d) obtained through substitution, addition, inversion and/or deletion of one or more bases; or

f) a nucleic acid complementary to a nucleic acid according to one of the groups a) to e);

with the proviso that nucleic acids with a sequence according to one of the SEQ ID NO 3 to 5 are excluded,

wherein said nucleic acid is~~a nucleic acid according to one of the Claims 1 to 3 and/or a fragment according to one of the claims 4 or 5,~~ under the control of an~~the~~ element~~s~~ regulating expression.

7. The c~~C~~onstruct according to Claim 6, ~~characterized in that the nucleic acid or the fragment~~that is in anti-sense orientation to the regulatory element.

8. The c~~C~~onstruct according to ~~one of the~~ Claim~~s~~ 6 ~~or 7, characterized in~~ that ~~it~~ is available in a plasmid.

9. A h~~H~~ost cell comprising~~ntaining~~ a nucleic acid or fragment thereof that codes for a plant or animal nuclear base transporter comprising:

a) a nucleic acid that is obtainable through complementation of nuclear base transporter-deficient host cells with a plant or animal gene bank

and selection of nuclear base transporter-positive host cells;

b) a nucleic acid with a sequence that codes for a protein having a sequence according to SEQ ID NO:8 or SEQ ID NO:9;

c) a nucleic acid that hyridizes with a nucleic acid according to b);

d) a nucleic acid that, in consideration of degeneration of the genetic code, would hybridize with a nucleic acid according to b) or with the sequence complementary to b);

e) a derivative of a nucleic acid according to a) to d) obtained through substitution, addition, inversion and/or deletion of one or more bases; or

f) a nucleic acid complementary to a nucleic acid according to one of the groups a) to e);

with the proviso that nucleic acids with a sequence according to one of the SEQ ID NO 3 to 5 are excluded.

~~according to one of the Claims 1 to 3 and/or a nucleic acid with a sequence according to one of the SEQ ID NO 3 to 5 and/or a fragment of one of the aforementioned nucleic acids and/or a construct according to one of the Claims 6 to 8.~~

10. The h~~H~~ost cell according to Claim 9~~,~~ ~~characterized in~~ that ~~it~~ is selected from bacteria, yeast cells, mamalian cells and plant cells.

11. A t~~T~~ransgenic plant, ~~as well as~~ transgenic plant parts, ~~and/or~~ seeds of the

transgenic plant or host cell that comprises~~containing~~ a nucleic acid or fragment thereof that codes for a plant or animal nuclear base transporter comprising:

a) a nucleic acid that is obtainable through complementation of nuclear base transporter-deficient host cells with a plant or animal gene bank and selection of nuclear base transporter-positive host cells;

b) a nucleic acid with a sequence that codes for a protein having a sequence according to SEQ ID NO:8 or SEQ ID NO:9;

c) a nucleic acid that hyridizes with a nucleic acid according to b);

d) a nucleic acid that, in consideration of degeneration of the genetic code, would hybridize with a nucleic acid according to b) or with the sequence complementary to b);

e) a derivative of a nucleic acid according to a) to d) obtained through substitution, addition, inversion and/or deletion of one or more bases; or

f) a nucleic acid complementary to a nucleic acid according to one of the groups a) to e);

with the proviso that nucleic acids with a sequence according to one of the SEQ ID NO 3 to 5 are excluded.

~~according to one of the Claims 1 to 3 and/or a nucleic acid with a sequence according to one of the SEQ ID NO 3 to 5 and/or a fragment of the aforementioned nucleic acids and/or a construct according to one of the Claims 6 to 8.~~

12. The t~~T~~ransgenic plant, part of the transgenic plant, ~~host cell and/or~~ seeds or host cell according to ~~one of the~~ Claims ~~9 to~~ 11, wherein said~~characterized in that the~~ nucleic acid or ~~the~~ fragment ~~or the construct~~ is integrated into a site on the genome that~~which~~ does not correspond to its natural position.

13. A p~~P~~rotein obtainable through expression in a host cell of a nucleic acid according to ~~one of the~~ Claims ~~1 to 3~~ or a nucleic acid having~~with~~ a sequence selected from the group consisting of~~according to one on the~~ SEQ ID NO:~~-~~3, SEQ ID NO:4 and SEQ ID NO:~~ to 5 in a host cell~~.

14. An a~~A~~ntibody~~ies which~~ that reacts with a protein obtainable through expression in a host cell of a nucleic acid or fragment thereof that codes for a plant or animal nuclear base transporter comprising:

a) a nucleic acid that is obtainable through complementation of nuclear base transporter-deficient host cells with a plant or animal gene bank and selection of nuclear base transporter-positive host cells;

b) a nucleic acid with a sequence that codes for a protein having a sequence according to SEQ ID NO:8 or SEQ ID NO:9;

c) a nucleic acid that hyridizes with a nucleic acid according to b);

d) a nucleic acid that, in consideration of degeneration of the genetic code, would hybridize with a nucleic acid according to b) or with the sequence complementary to b);

e) a derivatives of a nucleic acid according to a) to d) obtained through substitution, addition, inversion and/or deletion of one or more bases;

f) a nucleic acid complementary to a nucleic acid according to one of the groups a) to e); or

g) a nucleic acid having a sequence selected from the group consisting of SEQ ID NO:3, SEQ ID NO:4 and SEQ ID NO:5.

~~according to Claim 13.~~

15. A p~~P~~rocess for the manufacture of a transgenic plant comprising ~~, which includes~~ the following steps:

A. - insertieng ~~of~~ a nucleic acid- or fragment thereof that codes for a plant or animal nuclear base transporter comprising:

a) a nucleic acid that is obtainable through complementation of nuclear base transporter-deficient host cells with a plant or animal gene bank and selection of nuclear base transporter-positive host cells;

b) a nucleic acid with a sequence that codes for a protein having a sequence according to SEQ ID NO:8 or SEQ ID NO:9;

c) a nucleic acid that hyridizes with a nucleic acid according to b);

d) a nucleic acid that, in consideration of degeneration of the genetic code, would hybridize with a nucleic acid according to b) or with the sequence complementary to b);

e) a derivative of a nucleic acid according to a) to d) obtained through substitution, addition, inversion and/or deletion of one or more bases;

f) a nucleic acid complementary to a nucleic acid according to one of the groups a) to e); or

g) ~~according to one of the Claims 1 to 3 or~~ a nucleic acid with a sequence selected from the group consisting of~~according to one of the~~ SEQ ID NO:~~-~~3, SEQ ID NO:4 and SEQ ID NO:~~-to-~~5

~~-and/or a fragment of this nucleic acid-~~in a plant cell to make a transformed plant cell; and

B. ~~-~~regeneratingon~~-of~~ a plant from the transformed plant cell.

16. A pProcess for ~~the-~~influencing ~~of-~~the nuclear base transporter properties of a plant, part of a plant ~~and/~~or of seeds, comprising ~~which includes the step:~~

~~-~~insertieng~~-of~~ into a plant cell or plant a nucleic acid or fragment thereof that codes for a plant or animal nuclear base transporter comprising:

a) a nucleic acid that is obtainable through complementation of nuclear base transporter-

deficient host cells with a plant or animal gene bank and selection of nuclear base transporter-positive host cells;

b) a nucleic acid with a sequence that codes for a protein having a sequence according to SEQ ID NO:8 or SEQ ID NO:9;

c) a nucleic acid that hyridizes with a nucleic acid according to b);

d) a nucleic acid that, in consideration of degeneration of the genetic code, would hybridize with a nucleic acid according to b) or with the sequence complementary to b);

e) a derivative of a nucleic acid according to a) to d) obtained through substitution, addition, inversion and/or deletion of one or more bases;

f) a nucleic acid complementary to a nucleic acid according to one of the groups a) to e); or

g) a nucleic acid with a sequence selected from the group consisting of SEQ ID NO:3, SEQ ID NO:4 and SEQ ID NO:5.

~~a nucleic acid according to one of the Claims 1 to 3 or a nucleic acid with a sequence according to one of the SEQ ID NO 3 to 5 and/or a fragment of this nucleic acid into a plant cell and/or a plant.~~

17. A u~~U~~se of plant cells ~~according to Claim 10~~ for the regeneration and manufacture of entire plants, wherein said plant cells comprise a

nucleic acid or fragment thereof that codes for a plant or animal nuclear base transporter comprising:

a) a nucleic acid that is obtainable through complementation of nuclear base transporter-deficient host cells with a plant or animal gene bank and selection of nuclear base transporter-positive host cells;

b) a nucleic acid with a sequence that codes for a protein having a sequence according to SEQ ID NO:8 or SEQ ID NO:9;

c) a nucleic acid that hyridizes with a nucleic acid according to b);

d) a nucleic acid that, in consideration of degeneration of the genetic code, would hybridize with a nucleic acid according to b) or with the sequence complementary to b);

e) a derivative of a nucleic acid according to a) to d) obtained through substitution, addition, inversion and/or deletion of one or more bases; or

f) a nucleic acid complementary to a nucleic acid according to one of the groups a) to e);

with the proviso that nucleic acids with a sequence according to one of the SEQ ID NO 3 to 5 are excluded.

~~.~~

18. A u~~U~~se of a nucleic acid or fragment thereof ~~according to one of the Claims 1 to 3 or a nucleic acid with a sequence according to one of the SEQ ID NO 3 to 5~~ for the isolation of homologous sequences from bacteria, fungi, plants, animals

~~and/~~or human beings, wherein said nucleic acid or fragment thereof codes for a plant or animal nuclear base transporter comprising:

a) a nucleic acid that is obtainable through complementation of nuclear base transporter-deficient host cells with a plant or animal gene bank and selection of nuclear base transporter-positive host cells;

b) a nucleic acid with a sequence that codes for a protein having a sequence according to SEQ ID NO:8 or SEQ ID NO:9;

c) a nucleic acid that hyridizes with a nucleic acid according to b);

d) a nucleic acid that, in consideration of degeneration of the genetic code, would hybridize with a nucleic acid according to b) or with the sequence complementary to b);

e) a derivative of a nucleic acid according to a) to d) obtained through substitution, addition, inversion and/or deletion of one or more bases;

f) a nucleic acid complementary to a nucleic acid according to one of the groups a) to e); or

g) a nucleic acid with a sequence selected from the group consisting of SEQ ID NO:3, SEQ ID NO:4 and SEQ ID NO:5.

19. A u~~U~~se of a nucleic acid or fragment thereof ~~according to one of the Claims 1 to 3 or a nucleic acid with a sequence according to one of the SEQ ID NO 3 to 5~~ for the expression of a nuclear base

transporter in prokaryotic and/or eukaryotic cells, wherein said nucleic acid or fragment thereof codes for a plant or animal nuclear base transporter comprising:

a) a nucleic acid that is obtainable through complementation of nuclear base transporter-deficient host cells with a plant or animal gene bank and selection of nuclear base transporter-positive host cells;

b) a nucleic acid with a sequence that codes for a protein having a sequence according to SEQ ID NO:8 or SEQ ID NO:9;

c) a nucleic acid that hyridizes with a nucleic acid according to b);

d) a nucleic acid that, in consideration of degeneration of the genetic code, would hybridize with a nucleic acid according to b) or with the sequence complementary to b);

e) a derivative of a nucleic acid according to a) to d) obtained through substitution, addition, inversion and/or deletion of one or more bases;

f) a nucleic acid complementary to a nucleic acid according to one of the groups a) to e); or

g) a nucleic acid with a sequence selected from the group consisting of SEQ ID NO:3, SEQ ID NO:4 and SEQ ID NO:5.

20. A ~~u~~Use of a nucleic acid or fragment thereof ~~according to one of the Claims 1 to 3 or a nucleic acid with a sequence according to one of the~~

~~SEQ ID NO 3 to 5~~ under the control of a regulatory element in anti-sense orientation for the inhibition of the expression of an endogenous nuclear base transporter in prokaryotic or eukaryotic cells, wherein said nucleic acid or fragment thereof codes for a plant or animal nuclear base transporter comprising:

a) a nucleic acid that is obtainable through complementation of nuclear base transporter-deficient host cells with a plant or animal gene bank and selection of nuclear base transporter-positive host cells;

b) a nucleic acid with a sequence that codes for a protein having a sequence according to SEQ ID NO:8 or SEQ ID NO:9;

c) a nucleic acid that hyridizes with a nucleic acid according to b);

d) a nucleic acid that, in consideration of degeneration of the genetic code, would hybridize with a nucleic acid according to b) or with the sequence complementary to b);

e) a derivative of a nucleic acid according to a) to d) obtained through substitution, addition, inversion and/or deletion of one or more bases;

f) a nucleic acid complementary to a nucleic acid according to one of the groups a) to e); or

g) a nucleic acid with a sequence selected from the group consisting of SEQ ID NO:3, SEQ ID NO:4 and SEQ ID NO:5.

21. A u~~U~~se of a nucleic acid or fragment thereof ~~according to one of the Claims 1 to 3 or a nucleic acid with a sequence according to one of the SEQ. ID NO 3 to 5~~ for the manufacture of useful transgenic plants, wherein said nucleic acid or fragment thereof codes for a plant or animal nuclear base transporter comprising:

a) a nucleic acid that is obtainable through complementation of nuclear base transporter-deficient host cells with a plant or animal gene bank and selection of nuclear base transporter-positive host cells;

b) a nucleic acid with a sequence that codes for a protein having a sequence according to SEQ ID NO:8 or SEQ ID NO:9;

c) a nucleic acid that hyridizes with a nucleic acid according to b);

d) a nucleic acid that, in consideration of degeneration of the genetic code, would hybridize with a nucleic acid according to b) or with the sequence complementary to b);

e) a derivative of a nucleic acid according to a) to d) obtained through substitution, addition, inversion and/or deletion of one or more bases;

f) a nucleic acid complementary to a nucleic acid according to one of the groups a) to e); or

g) a nucleic acid with a sequence selected from the group consisting of SEQ ID NO:3, SEQ ID NO:4 and SEQ ID NO:5.

22. A u~~U~~se of a nucleic acid ~~according to one of the Claims 1 to 3 or a nucleic acid with a sequence according to one of the SEQ ID NO 3 to 5~~ for the identification of inhibitors of nuclear base transport, wherein said nucleic acid or fragment thereof codes for a plant or animal nuclear base transporter comprising:

a) a nucleic acid that is obtainable through complementation of nuclear base transporter-deficient host cells with a plant or animal gene bank and selection of nuclear base transporter-positive host cells;

b) a nucleic acid with a sequence that codes for a protein having a sequence according to SEQ ID NO:8 or SEQ ID NO:9;

c) a nucleic acid that hyridizes with a nucleic acid according to b);

d) a nucleic acid that, in consideration of degeneration of the genetic code, would hybridize with a nucleic acid according to b) or with the sequence complementary to b);

e) a derivative of a nucleic acid according to a) to d) obtained through substitution, addition, inversion and/or deletion of one or more bases;

f) a nucleic acid complementary to a nucleic acid according to one of the groups a) to e); or

g) a nucleic acid with a sequence selected from the group consisting of SEQ ID NO:3, SEQ ID NO:4 and SEQ ID NO:5.

23. The nucleic acid fragment according to Claim 4 that includes at least 50 nucleotides.

24. The nucleic acid fragment according to Claim 4 that includes at least 200 nucleotides.

25. The construct according to Claim 6 wherein said nucleic acid is a fragment characterized in that in anti-sense orientation to a promoter it can inhibit the expression of a nuclear base transporter in a host cell.

26. The construct according to Claim 7 that is available in a plasmid.

27. The nucleic acid according to Claim 2 that is a DNA.

28. The nucleic acid fragment according to Claim 4 the sequence of which includes a portion of coding sequence according to SEQ ID NO:1, 2, 6, 7, or 10, or a derivative of a coding sequence according to SEQ ID NO:1, 2, 6, 7, or 10 derived through substitution, addition, inversion and/or deletion of one or more bases.

29. The host cell according to Claim 9 that comprises or further comprises a nucleic acid with a sequence according to one of the SEQ ID NO 3 to 5.

30. The host cell according to Claim 9 that comprises or further comprises a recited nucleic acid fragment.

31. The host cell according to Claim 9 that comprises or further comprises a construct having a recited nucleic acid or nucleic acid fragment under the control of an element regulating expression.

32. The transgenic plant, transgenic plant part, seed or host cell according to Claim 11 that comprises or further comprises a nucleic acid having a sequence selected from the group consisting of SEQ ID NO:3, SEQ ID NO:4 and SEQ ID NO:5.

33. The transgenic plant, transgenic plant part, seed or host cell according to Claim 11 that comprises or further comprises a fragment of said nucleic acid.

34. The transgenic plant, transgenic plant part, seed or host cell according to Claim 11 that comprises or further comprises a construct having said nucleic acid sequence under the control of an element regulating expression.